

**2004 GALVESTON BAY INVASIVE SPECIES RISK ASSESSMENT
INVASIVE SPECIES SUMMARY**

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Common Name: Suckermouth catfish, <i>plecostomus</i>
Latin Name: <i>Hypostomus punctatus</i> (syn <i>Plecostomus</i> sp.)
Category: Aquatic Animal
Place of Origin: “This species naturally occurs on the Pacific slope of Costa Rica and both slopes of Panama, southward to Uruguay (Miller, 1966) (http://www.gsmfc.org/nis/nis/Hypostomus_plecostomus.html).”
<p>Place of Introduction: “For the Gulf of Mexico drainages this species is established in Six Mile Creek, Hillsborough county, Florida, and in the San Antonio River, Bexar county, Texas (Hubbs et al., 1978; Courtenay et al., 1984; Shafland, 1996). Specimens have been collected from other localities in both states (Rivas, 1965; Courtenay et al., 1974; Howells, 1992).</p> <p>The population established in Bexar county, Texas was introduced through an escape from the San Antonio Zoological Gardens (Courtenay et al., 1984). Additionally, specimens have been collected from Comal Springs, Comal county, Texas (Whiteside in Howells, 1992). These are believed to have been released by recreational aquarists (Howells, 1992) (http://www.gsmfc.org/nis/nis/Hypostomus_plecostomus.html).”</p> <p>Also found in Arizona (http://ag.arizona.edu/azaqua/extension/ANS/ArizonaPlan.htm)</p>
Date of Introduction: Sometime during the 1960s or 1970s (http://www.gsmfc.org/nis/nis/Hypostomus_plecostomus.html).
<p>Life History: “Ripe males develop barbel-like appendages about their mouth, whereas females have the tendency to develop swollen abdomens. Eggs are spawned on the surface of substrates such as stones or logs (Sakurai et al., 1992), or in holes (Lee et al., 1980). Males care for the eggs which hatch in 3-5 days (Sakurai et al., 1992). Hubbs et al. (1978) counted 716 yolked eggs approximately 3.25 mm in diameter, from a female 182 mm SL. These authors suggested an extended breeding season for fish established in the San Antonio River, Texas, based on the wide variety of size classes they collected.</p> <p>Suckermouth catfish do not typically breed in captivity (Axelrod et al., 1971; Sakurai et al., 1992). (http://www.gsmfc.org/nis/nis/Hypostomus_plecostomus.html).”</p>
Growth/Size: “Typically this species grows to between 500 and 600 mm over its native range (Axelrod et al., 1971; Lee et al., 1980; Sterba, 1983). Courtney et al. (1974) reported a specimen from open waters of Dade county which measured 690 mm. Aquarium specimens rarely exceed 30 cm (Axelrod et al., 1971). (http://www.gsmfc.org/nis/nis/Hypostomus_plecostomus.html).”
Feeding Habits/Diet: “Algae and detritus constitute their main food items (Axelrod et al., 1971; Courtenay et al., 1974; Lee et al., 1980; Sterba, 1983; Sakurai et al., 1992). (http://www.gsmfc.org/nis/nis/Hypostomus_plecostomus.html).”
<p>Habitat: “In the Gulf drainages, adult suckermouth catfishes are typically found in rocky streams, whereas juveniles are more common in areas rich in vegetation (Hubbs et al., 1978; Lee et al., 1980; Page and Burr, 1991). They are able to tolerate oxygen-poor waters well. Lee et al. (1980) suggested specimens may even occasionally migrate over land. This species has been described as locally abundant, and expanding its range in the Gulf drainages (Lee et al., 1980; Courtenay and Stauffer, 1990). However, according to Shafland (1996), it has not been as successful as the closely related sailfin catfish, <i>Liposarcus multiradiatus</i>.</p> <p>Lee et al. (1980) reported that some specimens had been stocked for algae control, however, they did not specify where.</p> <p>Salinity Tolerance: Suckermouth catfishes occur in fresh running waters and brackish waters of river mouths (Sterba, 1983; Sakurai et al., 1992).</p> <p>Temperature Tolerance: Cold waters appear to be tolerated well by this species (Sterba, 1983).</p> <p>Trophic Interactions: Suckermouth catfish are active at night (Axelrod et al., 1971; Lee et al., 1980; Sterba, 1983). They spend their days hidden on the underside of logs or large rocks (Axelrod et al., 1971; Courtenay et al., 1974; Lee et al., 1980; Sterba, 1983; Sakurai et al., 1992). (http://www.gsmfc.org/nis/nis/Hypostomus_plecostomus.html).”</p>
Attitude (aggressive, etc.): “Suckermouth catfish are not typically aggressive towards other species, although they may be quite aggressive among themselves (Axelrod et al., 1971). In this sense, Courtenay et al. (1974) described armored catfish as "innocuous, occupying a niche which has minimum overlap with niches of native fish species". Their broad salinity and temperature tolerance, greatly improves their chances of expanding their range and increasing their abundance in the Gulf. In addition, because they grow

larger than most aquarium fish, recreational aquarists have a tendency to release them, once they think these have out grown their tanks. It is difficult to assess the effects of their establishment on the Gulf of Mexico ecosystem. (http://www.gsmfc.org/nis/nis/Hypostomus_plecostomus.html).”

Physical Description: “The *Hypostomus* group is not diagnosed by any unique characteristics. Characteristics considered synapomorphic for the group are: a hatchet-shaped opercle, the anterior process of the pterotic-supracleithrum passing halfway through the orbit, and a pointed cleithral process. In addition, in several trees, the bulk of the *Hypostomus* group are supported by a pointed transverse process of the Weberian apparatus that is fused to the pterotic-supracleithrum.”

Hypostomus sp. are. . . “Small to large loricariids that defy a unifying description. Color pattern varies from having a white ground color and black spots, to brown and spotted, to black with red, gold, or white spots. Abdomen also varies in color from white to black and may be spotted or not. Abdomen ranges from naked to completely plated (usually with plates). Caudal fin forked with the lower lobe longer than upper. Two or three predorsal plates. Five rows of plates on caudal peduncle (except *H. dlouhyi* Weber which has three). *Hypostomus emarginatus* group, *H. cordovae* (Günther), and *H. spiniger* (Hensel) with elongated bodies with *Isorineloricaria* most elongate with a very long, whip-like tail that is circular in cross-section in adults. Most other species have stout bodies. Lateral plates keeled or not. Cheek plates evertible to approximately a 30° angle.

SEXUAL DIMORPHISM.—In most, males develop hypertrophied odontodes on the leading edge of the pectoral-fin spine and the distal tip of the spine may become swollen. Additionally, in members of the *H. emarginatus* clade (includes *Aphanotorulus* and *Isorineloricaria*), males develop hypertrophied odontodes on the body during the breeding season (Armbruster and Page, 1996); these odontodes are normally best developed on the posterolateral plates, the caudal-fin spines, and the adipose-fin spine. In addition, *Isorineloricaria* develops hypertrophied odontodes over the entire lateral and dorsal surface of the body including the cheeks (the cheek plates are not highly evertible). Nuptial males of *Aphanotorulus* develop elongate, unicuspid teeth (Armbruster and Page, 1996). Nuptial males of some species of the *Cochliodon* develop wider, more widely spaced odontodes on the lateral plates (the odontodes are not longer in nuptial males.) (http://george.cosam.auburn.edu/usr/key_to_loricariidae/hypostom/hypos.html)."

Management Recommendations / Control Strategies: include references for existing site-specific strategies

Arizona State Aquatic Nuisance Species Management Plan. May, 2002.

<http://ag.arizona.edu/azaqua/extension/ANS/ArizonaPlan.htm>

“This document is an important step in the coordinated response to the problem and serves as an efficient means of communicating the scope of activities necessary to effectively address the issue. Several projects across the state have focused on isolated ANS plant and animal problems. The purpose of the Arizona State Aquatic Nuisance Species Management Plan is to provide guidance on management actions to address the prevention, control and impacts of unwanted nonindigenous aquatic nuisance species that have invaded or may invade Arizona.

State, federal and international ANS authorities and programs are briefly discussed to provide an understanding of our current ability to regulate and manage ANS. The development of a state management plan, as called for in Section 1204 of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (P.L. 101-646) (NANPCA) provides an opportunity for federal cost-share support for implementation of the plan. Approval of this management plan by the national Aquatic Nuisance Species (ANS) Task Force is also required for Arizona to be eligible for federal cost-share support. Freshwater nonindigenous species that are known to have been found in Arizona are listed. Very little is known about the impact of many nonindigenous species and some have high commercial, recreational and aesthetic values. The plan identifies a small number of priority nonindigenous ANS that are considered to be highly detrimental, and worthy of immediate or continued management action. The management actions outlined in this plan concentrate on these priority species.”

References (includes journals, agency/university reports, and internet links):

1. http://www.gsmfc.org/nis/nis/Hypostomus_plecostomus.html. Gulf of Mexico Program, Non-Indigenous Species Profiles (Unable to locate Lee, et al., 1980, see web site.)
2. http://george.cosam.auburn.edu/usr/key_to_loricariidae/hypostom/hypos.html. The *Hypostomus* Group: *Aphanotorulus* Isbrücker and Nijssen, 1983, *Cochliodon* Heckel, 1854, *Hypostomus* Lacépède 1808, and *Isorineloricaria* Isbrücker 1980. in the Website of Loricariid Home Page by Jon Armbruster.
3. <http://ag.arizona.edu/azaqua/extension/ANS/ArizonaPlan.htm>. Arizona State Aquatic Nuisance Species Management Plan. May, 2002.
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6. Miller, R.R. 1966. Geographic distribution of Central American freshwater fishes. *Copeia* 1966(4):773-802.
7. Hubbs, C., T. Lucier, G.P. Garrett, R.J. Edwards, S.M. Dean, and E. Marsh. 1978. Survival and abundance of introduced fishes near

San Antonio, Texas. The Texas Journal of Science 30(4):369-376.

8. Courtenay, W.R., Jr., D.A. Hensley, J.N. Taylor, and J.A. McCann. 1984. Distribution of exotic fishes in the continental United States. Pages 41-77 in W.R. Courtenay, Jr., and J.R. Stauffer, Jr. Distribution, Biology and Management of Exotic Fishes. John Hopkins University Press. Baltimore.
9. Shafland, P.L. 1996. Exotic fishes of Florida- 1994. Reviews in Fisheries Science 4(2):101-122.
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11. Courtenay, W.R., Jr., H.F. Sahlman, W.W. Miley, II, and D.J. Herrema. 1974. Exotic fishes in fresh and brackish waters of Florida. Biological Conservation 6(4):292-302.
12. Howells, R.G. 1992. Annotated list of introduced non-native fishes, mollusks, crustaceans and aquatic plants in Texas waters. Texas Parks and Wildlife Data Management Series No. 78. Austin. 19 pp.
13. Sakurai, A., Y. Sakamoto, and F. Mori. 1992. Aquarium Fish of the World. The Comprehensive Guide to 650 Species. English translation by Takeshi Shimizu with Neil M. Teitler. Edited by P. V. Loisel. Chronicle Books. San Francisco. 288 pp.
14. Hubbs, C., T. Lucier, G.P. Garrett, R.J. Edwards, S.M. Dean, and E. Marsh. 1978. Survival and abundance of introduced fishes near San Antonio, Texas. The Texas Journal of Science 30(4):369-376.
15. Axelrod, H.R., C.W. Emmens, D. Sculthorpe, W.V. Winkler, and N. Pronek. 1971. Exotic Tropical Fishes. TFH Publications, Inc. Jersey City, NJ.
16. Page, L.M., and B.M. Burr. 1991. A Field Guide to Freshwater Fishes North America North of Mexico. Peterson Field Guide Series. Houghton Mifflin and Company. Boston. 432 pp.
17. Courtenay, W.R., Jr., and J.R. Stauffer, Jr. 1990. The introduced fish problem and the aquarium fish industry. Journal of the World Aquaculture Society 21(3):145-159.
18. Armbruster, J.W. and L.M. Page. 1996. Redescription of *Aphanotorulus* (Teleostei: Loricariidae) with description of one new species, *A. ammophilus*, from the Río Orinoco basin. Copeia 1996:379-389.

Available Mapping Information:

1. Historical Distribution of *Hypostomus plecostomus* in Non-Native Range. Gulf of Mexico Program, Non-Indigenous Species Profiles. http://www.gsmfc.org/nis/nis/nrange/Hypostomus_plecostomus_non-native_range.html